

## Lafarge Aggregates

# Keeping colour pure and simple

Innovation is enabling Lafarge Aggregates to produce top quality coloured asphalt from its mixing plant at Stevenage.

**D**emand for decorative finishes and greater demarcation for improved road safety is raising the popularity of coloured surfacings among UK local authorities. Introduction of such materials is also being boosted by innovation that reduces the initial investment required to establish product trials while ensuring high quality of material production.

In comparison to resin based overlays, coloured asphalts combine equal aesthetic advantages, but with benefits of higher performance and lower whole life cost – a combination gaining favour in Hertfordshire. Over the last 12 months, Hertfordshire County Council (HCC) has been trialing

Lafarge Aggregates' coloured asphalt Axotone to add definition to bus stops and lanes.

Lafarge avoided the need to invest in new storage tanks at its Stevenage mixing plant during the early stages of the trial by using an innovative binder system, developed by Shell Bitumen.

"Purity is key to producing and laying high quality coloured asphalt," says Lafarge National Commercial Development Manager Jim Wilson. "The binders used in coloured asphalts are clear and the final product can be compromised if the binder comes into contact with conventional 'black' bitumen binders and asphalt.

"Bitumen tanks specifically for the clear

binder are usually needed to avoid contamination and equipment must be cleaned, or renewed, before production starts. But the cost of new tanks is hard to justify during the initial trial stages of product development or until the product is established in a new market."

Lafarge avoided high start up costs during the Hertfordshire trial by using Shell's Mexphalte C Pack binder system instead of dedicated binder tanks. The packs were added to hot aggregate as a complete unit, including the polyethylene wrapping, as the asphalt was mixed. This allowed the materials specialist to complete the Axotone trial for HCC before investing in new storage facilities at its Stevenage asphalt plant.

"We started working on development of Axotone, which is based on our thin surfacing technology, at our Shawell Laboratory during the early part of 2003," says Wilson. "Thin surfacing materials combine good skid resistance with reduced traffic noise and high durability. Many local authorities are already familiar with the benefits of thin surfacings, so adding colour to the material widens the appeal of Axotone.

"We opted to work with Shell on the development partly because of our close partnering history, but also because we wanted to use Shell's Mexphalte C binder for the new product."

Shell Bitumen Account Manager Dave Foster says: "Mexphalte C is a synthetic

Shell's Mexphalte C Pack system allowed Lafarge to produce Axotone without the need for dedicated binder tanks





Bus cages on the A1000 in Hatfield were the first live sites to be surfaced with Axotone

clear binder that was first produced in the 1970s, specially for use in coloured surfacings. The pack system is a relatively new development which we created to cope with lower volume production of coloured surfacing materials and it proved useful to Lafarge, too, for the Axotone trials."

Lafarge and Shell's development teams worked together for several months to hone the asphalt mix and optimise the binder's properties. The Axotone range created by the development team is available in four different shades – red, green, buff and natural. The colour is achieved by using a small amount of pigment and a similarly coloured aggregate, which has a polished stone value suited to the asphalt's end use.

Once the final mix and colour range had been selected, a full mixing and laying test of the green shade of Axotone was carried out at Lafarge's Stevenage asphalt plant in June last year. The paver was cleaned before work got under way and the laying team was issued with new personal protective equipment to minimise the risk of contaminating the coloured material.

"The trial went very well and the highway engineers from HCC who visited the site later were also impressed," says

Wilson. "They wanted to try using the green material for demarcation of several bus lanes but had concerns about using asphalt because of the high potential for fuel spillages.

"The synthetic binder used in the Axotone mix means that it is actually better at resisting damage from fuel spillages than

**"The synthetic binder means that Axotone is better at resisting damage from fuel spillages than asphalt bound by conventional bitumen binders."** Jim Wilson

asphalt bound by conventional bitumen binders. We carried out a number of laboratory tests to prove Axotone's fuel resisting benefits to HCC and the results showed that its resistance is significantly improved by the Mexphalte C binder."

Bus cages – the demarcation and approaches to bus stops – on the A1000 in Hatfield were first to get the Axotone treatment in September last year. "HCC has a policy of marking its bus lanes, bus stops and bus cages with green surfacings," says Wilson.

"Until now the council had always used overlays to achieve this demarcation but had experienced problems with discolouring and surface deterioration within a few years of laying. In essence,

HCC wanted to find a more long term solution."

The council was obviously pleased with the final result because it awarded several further Axotone contracts to Lafarge soon after completion of the work in Stevenage. "Since we finished the work on the A1000, we have also surfaced several bus lanes

and lay-bys on roads in Watford, Stevenage and Ware using more of our green asphalt," says Wilson. "HCC and Hertfordshire Highways have now approved Axotone for use elsewhere in the county which has given other local authorities more confidence in the product."

Following the HCC stamp of approval, Lafarge has invested in a dedicated Mexphalte C binder tank at its Stevenage asphalt plant. But introduction of the binder pack system means that the company can manufacture at a number of other asphalt plant locations in the UK, allowing Axotone to be supplied to sites in the South East, East Anglia and the Midlands.

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